inverse and the Moore–Penrose inverse, consists of matrices all of whose principal minors are nonnegative. A particular generalization of a recent result of Meyer and Stadelmair on the inverse positivity of a perturbed matrix of the form $A + t(I - AA^D)$ where A^D is the Drazin inverse of A is also obtained.

On a New Definition of the Dirichlet Process

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In this paper we present a new (constructive) definition of Ferguson's (Ann. Statist. 1 (1973) 209–230) Dirichlet process, and use this definition to derive several new properties of the process.

On Characterization of NonAdditive Measures of Relative Information and Inaccuracy

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In this paper we have considered a generalized non-additivity associated with a pair of discrete probability distributions and formed a functional equation under a sum property of the functions involved. The most general complex solutions have been obtained by using a technique of enlarging the determinants. In terms of real and continuous solutions some non-additive measures of relative information and inaccuracy have been characterized. Particular and limiting cases of these measures have been also studied.

Combinants and the Applications

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The concept of combinants used in the definition of probability generating functions is analysed and it is shown that they play the same role in computing cumulants as probabilities play in the calculation of moments.

The relationships between combinants, probabilities and other types of statistics are arrived at by utilising the mathematical framework of Bell polynomials. Characteristics of second order stochastic processes are analysed by the use of combinants. Effective use of combinants for generating formulae relating to moments of the Nth generation in a branching process are brought out. Evolution equations for combinants just as for probabilities lead to computation of cumulants for the solution in a direct way in situations where there are multiple productions and decays. Study of photo emission of electrons using different types of incident radiations both pure and mixed is facilitated by extension of the concept to mixed combinants. The cluster integrals that occur in the expressions of partition functions in the field of statistical mechanics can be related to combinants and some results from this identification are studied.